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भारतीय मानक
जीवन रक्षक नौकाओं के सहायकांग — विशिष्टि
(पहला पुनरीक्षण)

Indian Standard
LIFEBOAT ACCESSORIES — SPECIFICATION
(*First Revision*)

ICS 47.080

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Marine Engineering and Safety Aids Sectional Committee had been approved by the Transport Engineering Division Council.

This standard was first published in 1969. This revision incorporates latest International Maritime Resolution requirements (IMO). In this revised standard requirements of lifeboat release mechanism and fittings have been included.

Lifeboat accessories are part of the lifeboat equipment. These are covered by statutory and international rules and regulations.

This standard generally incorporates the requirements under the *Merchant Shipping Act*, 1958 and the Rules made thereunder; in addition, specification for lifeboat accessories as fitted on sea-going vessels is subject to the approval by the Government of India, under the said Act and Rules.

In the use of this standard reference to IS 3586 : 2006 'Recommendations for lifeboat equipment (*first revision*)' is necessary.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

LIFEBOAT ACCESSORIES — SPECIFICATION

(First Revision)

1 SCOPE

This standard lays down specification for lifeboat accessories, such as lifeboat plugs, rudder fastening arrangement, mast, mast step and sails.

2 REFERENCE

The following standard contains provision which through reference in this text, constitutes provision of this standard. At the time of publication, the edition indicated was valid. All the standards are subject to revision and parties to agreements based on this standard is encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

<i>IS No.</i>	<i>Title</i>
1424 : 1983	Cotton canvas (<i>third revision</i>)

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Plug — It may be of wood, rubber, cork or metal. The plugs may also be of screwed, plain fit or pressure fit types.

3.2 Rudder Fastening — An arrangement at the stern of the boat to keep the rudder in place and permit it to be moved over an angle of 45° to port and starboard, when the rudder is shipped in place.

3.3 Mast — A mast of wood for rigging the sails.

3.4 Mast Step — A galvanized iron or wooden fitting fitted on the keel on the inside of the boat providing a strong bearing socket for receiving the heel of the mast.

3.5 Mast Guide Step — A galvanized iron hinged fitting attached to the mast thwart to steady the mast when stepped into position.

4 GENERAL REQUIREMENT FOR LIFEBOAT ACCESSORIES

4.1 Lifesaving appliance shall,

- a) be constructed with proper workmanship and materials;
- b) not get damaged in stowage throughout the air temperature range -30°C to +65°C;
- c) operate throughout in the seawater temperature range -1°C to +30°C, it is likely to be immersed in seawater during their use;

- d) be rot-proof, corrosion resistant, and not be unduly affected by sea water, oil or fungal attack where applicable;
- e) be resistant to deterioration where exposed to sunlight;
- f) be of a highly visible colour on all parts where this will assist detection;
- g) be fitted with retro-reflective material where it will assist in detection;
- h) be capable of satisfactory operation in that environment if these are to be used in a seaway;
- j) be clearly marked with approval information, including the Administration which approved it and any operational restrictions; and
- k) be provided with electrical short-circuit protection to prevent damage or injury where applicable.

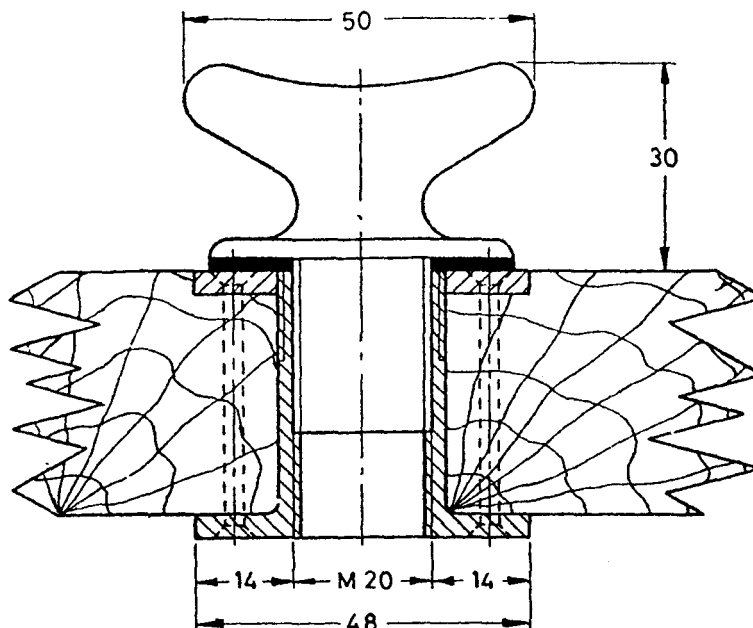
4.2 Indian Maritime Administration shall determine the period of acceptability of life saving appliances which are subject to deterioration with age. Such life saving appliances shall be marked with a means for determining their age or the date by which they must be replaced. Permanent marking with a date of expiry is the preferred method of establishing the period of acceptability. Batteries not marked with an expiration date may be used if they are replaced annually, or in the case of a secondary battery (accumulator), if the condition of the electrolyte can be readily checked.

5 PLUGS

5.1 When lifeboats are stowed on board ship, the drain hole shall be left open to prevent water accumulating in the boats due to rain or other causes. Prior to launching the drain hole shall be closed by the plug secured to the boat by a lanyard near the drain hole. The drain holes shall be positioned at the bottom of the boat, as close to the keel as possible.

5.2 In the case of wooden lifeboats, the shape and dimensions of the plug and the method of securing the bush shall be as shown in Fig. 1. The inner collar of the bush shall be flush with the bottom of the boat when the plug is open to enable all water to be drained.

5.3 With steel lifeboats a suitable welded lug with threads shall be provided to fit the plug in place. Similarly, suitable provision shall be made for



All dimensions in millimetres.

FIG. 1 DIMENSIONS FOR LIFEBOAT PLUG

Aluminium and fibre glass lifeboats. The minimum size of the plug shall be as given in Fig. 1.

5.4 Wooden tapered plugs or other types of self-acting plugs may also be used. In all cases, spare plugs shall be provided as part of the lifeboat equipment.

5.5 Plugs when made of rubber or cork shall be fitted with the rustproof through bolt for holding a ring at its inner end for lanyard attachment.

5.6 Metallic plugs shall be galvanized or otherwise made rustproof so that the threads do not deteriorate by corrosion.

6 RUDDER AND RUDDER FASTENING

6.1 The *rudder* shall be portable so that it can be easily unshipped and stored in the boat, when the lifeboat is stowed on board ship.

6.2 The *rudder* may be made of wood or material other than wood. In the latter case the dimensions of the *rudder* shall be assessed on the strength properties of such material.

6.3 The *rudder*, when made of wood, shall be from one of the species of timber listed in Annex A.

6.3.1 The thickness of *rudder* and width on the underside depends on the length of boat. For a lifeboat of 4.90 m length, the thickness and width on the underside of the *rudder* shall be not less than 25 mm and 305 mm, respectively. For a lifeboat of 8.50 m, the thickness and width on the underside of the *rudder*

shall not be less than 30 mm and 510 mm, respectively. For boats of intermediate lengths, the minimum values shall be interpolated. For lifeboats of length over 8.50 m, the thickness and width on the underside of the rudder shall be determined individually.

6.3.2 The *rudder* shall be properly strengthened when made of more than one plank. All strengthening hooks shall be galvanized prior to attachment to the rudder.

6.4 The *rudder* fastening arrangement shall be as shown in Fig. 2. Other suitable arrangement may also be used. The material for rudder fastening bolt shall be galvanized mild steel. Lock type nut shall be fitted.

6.5 The number of *rudder* fastening arrangement shall be such as to prevent the *rudder* from jumping or dropping off into sea and shall permit the movement of the rudder to port or starboard by an angle of 45°.

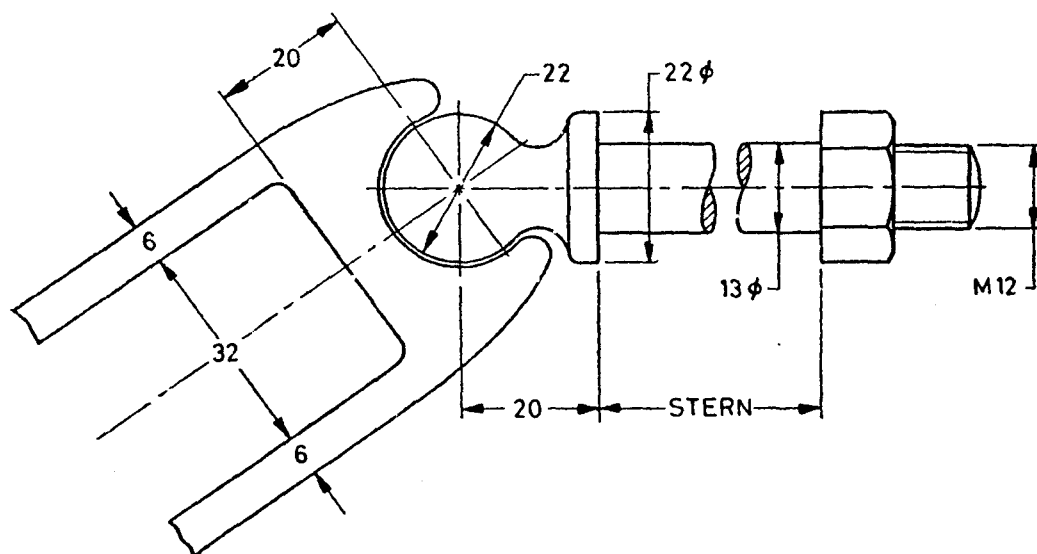
6.6 Provision shall be made separately at the stern of the boat or at the lower rudder fastening arrangement to retain the *rudder* at the predetermined position.

6.7 Provision shall be made at the stern of a lifeboat for fitting a rowlock for the use of the steering oar.

6.8 The tiller shall be made of wood or galvanized iron or any other suitable material like aluminum alloy.

7 MAST AND MAST STEPS

7.1 The recommended length and diameters of masts according to the lengths of boats (for standing lug sails) are given in Table 1.



All dimensions in millimetres.
FIG. 2 RUDDER GUIDE ARRANGEMENT

Table 1 Mast Length for Boats with Standing Lug Sails
(Clauses 7.1 and 7.2)

Sl No.	Length of Boat m	Length of Mast m	Dia at Thwart Step mm	Dia at Top mm
(1)	(2)	(3)	(4)	(5)
i)	4.25 and under	3.00	70	65
ii)	Over 4.25 to 5.50	3.40	75	65
iii)	Over 5.50 to 7.30	4.25	90	70
iv)	Over 7.30 to 8.50	5.00	100	80
v)	Over 8.50	5.50	110	85

7.2 With dipping lug sails, the length of mast shall be longer than that shown in Table 1 but with a maximum length of two-thirds of the length of boat.

7.3 A mast foot step with a square hole and made of wood or galvanized iron shall be fitted to the keel to receive the foot of the mast and prevent it from turning.

7.4 A mast step (guide clamp) shall be fitted as shown in Fig. 3 to the foremost thwart or on the second thwart from the forward end of the lifeboat.

7.5 The mast head shall be fitted with a galvanized iron band to accommodate the riggings (called 'Hounds Band').

7.6 The mast shall be made in one piece from the timber species listed in Annex A.

8 SAILS

8.1 Sails of the standing lug, dipping lug, or the diagonally cut dipping lug shall normally be used. A jib sail shall also be provided.

8.2 Lug sails shall be fixed at its top end with a yard of diameter equal to the diameter of mast at its top end, corresponding to the length of boat.

8.3 A waterproof canvas bag shall be provided for stowage of the sails. The waterproofed cotton canvas used shall conform to IS 1424.

8.4 All sails shall be fitted with means for reefing (shortening) so that they can be reefed down, when required.

8.5 The recommended size of lug and jib sails, according to length of boat, shall be as given in Table 2.

8.6 The canvas used for sails shall be waterproofed and shall conform to IS 1424.

8.7 Tolerance

8.7.1 The tolerance on length measurement of sails shall be ± 0.1 m.

8.7.2 The tolerances on area of sails shall be $+0$ to $+0.3$ m².

9 LIFEBOAT RELEASE MECHANISMS

9.1 Every lifeboat to be launched by a fall or falls, except a free fall lifeboat, shall be fitted with a release mechanism complying with the following requirements subject to following:

- the mechanism shall be so arranged that all hooks are released simultaneously;
- the mechanism shall have two release capabilities as follows:
 - a normal release capability which will release the lifeboat when it is waterborne

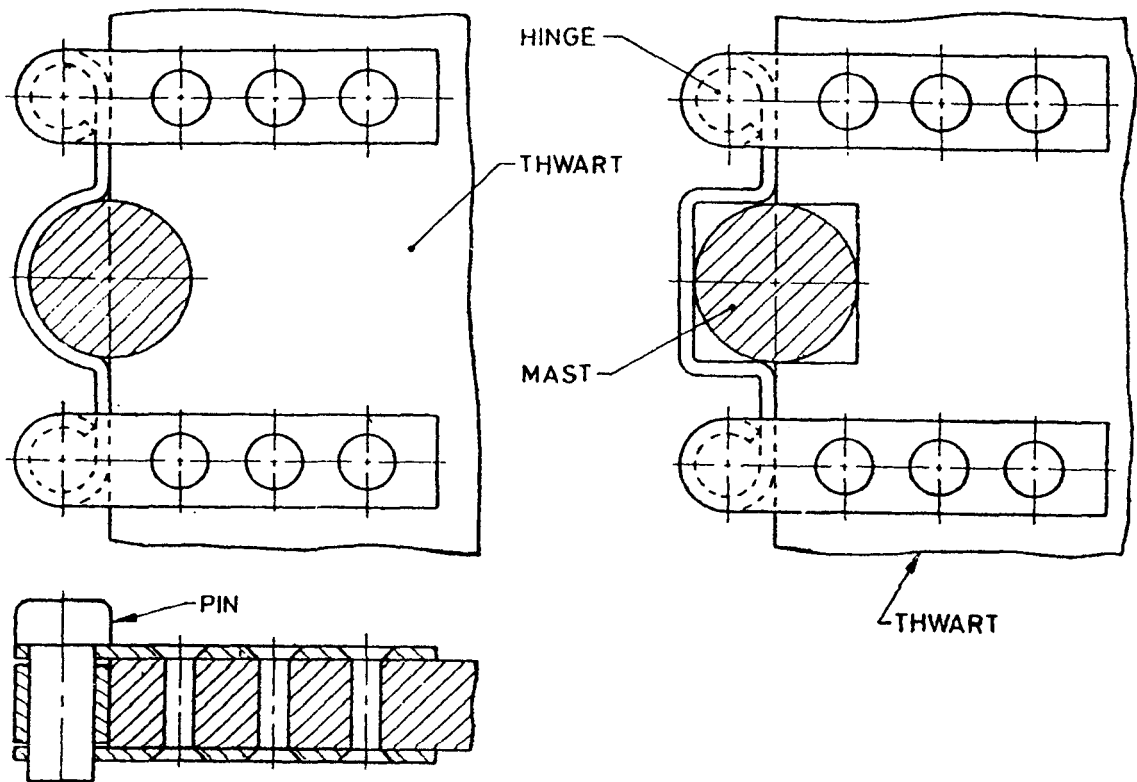


FIG. 3 MAST STEP (GUIDE CLAMP) FITTING

- or when there is no load on the hooks; and
- 2) an on load release capability which will release the lifeboat with a load on the hooks. This release shall be so arranged as to release the lifeboat under any condition of loading from no load with the lifeboat waterborne to a load of 1.1 times the total mass of the lifeboat when loaded with its full complement of persons and equipment. This release capability shall be adequately protected against accidental or premature use. Adequate protection shall include special mechanical protection not normally required for off-load release, in addition to a danger sign. To prevent any accidental release during recovery of the boat, the mechanical protection (interlock) shall only engage when the release mechanism is properly and completely reset. To prevent a premature on-load release, on-load operation of the release mechanism should require a deliberate and sustained action by the operator. The release mechanism shall be so designed that crew members in the lifeboat can clearly observe when the release mechanism is properly and completely reset and ready for lifting. Clear operating instructions should be provided with a suitably worded warning notice;
- c) the release control shall be clearly marked in a colour that contrasts with its surroundings;
- d) the fixed structural connections of the release mechanism in the lifeboat shall be designed with a calculated factor of safety of 6 based on the ultimate strength of the materials used, assuming the mass of the lifeboat is equally distributed between the falls; and
- e) where a single fall and hook system is used for launching a lifeboat or rescue boat in combination with a suitable painter, the requirements of 9.1 (b) (2) need not be applicable; in such an arrangement a single capability to release the lifeboat or rescue boat, only when it is fully waterborne, will be adequate.

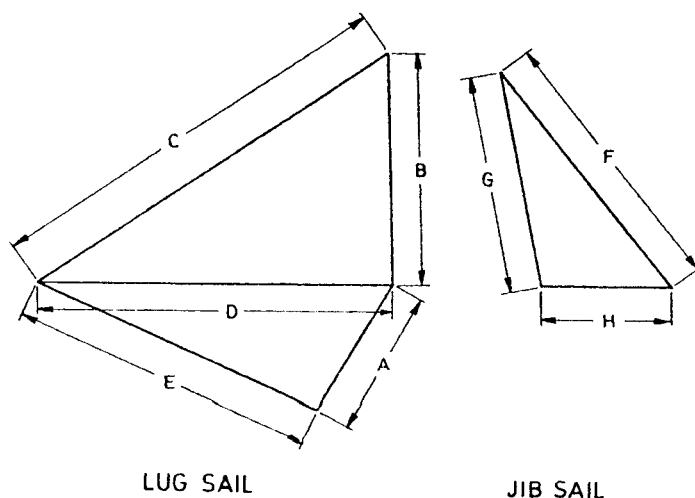
10 LIFEBOAT FITTINGS

10.1 All lifeboats except free fall lifeboats shall be provided with at least one drain valve fitted near the lowest point in the hull, which shall automatically open

Table 2 Recommended Sizes of Lugs and Jib Sails

All dimensions in metres.

(Clause 8.5)



Sl No.	Length of Boat	A	B	C	D	E	F	G	H	Area	
										Lug m ²	Jib m ²
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	5.20 and under	1.68	2.13	3.51	3.05	2.44	2.44	1.98	1.37	5.39	1.39
ii)	Over 5.20 to 5.50	1.98	2.29	3.96	3.51	2.74	2.90	2.29	1.52	6.69	1.77
iii)	Over 5.50 to 6.10	2.21	2.59	4.42	3.96	3.05	3.05	2.44	1.83	8.45	2.23
iv)	Over 6.10 to 6.70	2.59	2.74	5.03	4.42	3.51	3.35	2.74	1.83	10.41	2.51
v)	Over 6.70 to 7.30	2.90	2.90	5.18	5.03	3.96	3.66	2.90	1.83	12.82	2.60
vi)	Over 7.30 to 7.90	2.13	3.43	6.02	5.03	4.34	3.96	3.20	1.83	13.47	2.79
vii)	Over 7.90 to 8.50	2.36	3.58	6.25	5.33	4.65	4.57	3.66	1.98	15.33	3.16
viii)	Over 8.50 to 9.20	2.67	3.96	6.78	5.79	4.88	4.57	3.66	2.21	18.40	3.53

to drain water from the hull when the lifeboat is not waterborne and shall automatically close to prevent entry of water when the lifeboat is waterborne. Each drain valve shall be provided with a cap or plug to close the valve, which shall be attached to the lifeboat by a lanyard, a chain, or other suitable means. Drain valves shall be readily accessible from inside the lifeboat and their position shall be clearly indicated.

10.2 All lifeboats shall be provided with a *rudder* and tiller. When a wheel or other remote steering mechanism is also provided the tiller shall be capable of controlling the *rudder* in case of failure of the steering mechanism. The rudder shall be permanently attached to the lifeboat. The tiller shall be permanently installed on, or linked to, the *rudder* stock; however, if the lifeboat has a remote steering mechanism, the tiller may be removable and securely stowed near the *rudder* stock. The *rudder* and tiller shall be so arranged as not to be damaged by operation of the release mechanism or the propeller.

10.3 Except on the vicinity of the *rudder* and propeller, suitable hand holds shall be provided or a buoyant

lifeline shall be bucketed around the outside of the lifeboat above the waterline and within reach of a person in the water.

10.4 Lifeboats which are not self righting when capsized shall have suitable handholds on the underside of the hull to enable persons to cling to the lifeboat. The handholds shall be fastened to the lifeboat in such a way that, when subjected to an impact sufficient to cause them to break away from the lifeboat, they break away without damaging the lifeboat.

10.5 All lifeboats shall be fitted with sufficient watertight lockers or compartments to provide for the storage of the small items of equipment, water and provisions required by rules. The lifeboat shall be equipped with a means for collecting rainwater, and in addition if required by the administration, a means for producing drinking water from seawater with a manually powered declinator. The declinator shall not be dependent upon solar heat, nor on chemicals other than seawater. Means shall be provided for the storage of collected water.

10.6 Every lifeboat shall be fitted with a device to secure a painter near its bow. The device shall be such that the lifeboat does not exhibit unsafe or unstable characteristics when being towed by the ship making headway at speeds upto 5 knots in calm water. Except for free fall lifeboats, the painter securing device shall include a release device to enable the painter to be released from inside the lifeboat, with the ship making headway at speeds up to 5 knots in calm water.

10.7 Every lifeboat which is fitted with a fixed two way VHF radiotelephone apparatus with an antenna which is separately mounted shall be provided with arrangement for storing and securing the antenna effectively in its operating position.

10.8 Lifeboats intended for sliding down the side of a ship shall have skates and fenders as necessary to facilitate launching and prevent damage to the lifeboat.

10.9 A manually controlled lamp shall be fitted. The light shall be white and be capable of operating continuously for at least 12 h with a luminous intensity of not less than 4.3 cd in all directions of the upper hemisphere. However, if the light is a flashing light, it shall flash at a rate of not less than 50 flashes and not more than 70 flashes per minute for the 12 h operating period with an equivalent effective luminous intensity.

10.10 A manually controlled lamp or source of light shall be fitted inside the lifeboat to provide illumination for not less than 12 h to permit reading of survival and equipment instructions. Oil lamps shall not be permitted for this purpose.

10.11 Every lifeboat shall be so arranged that an adequate view forward, aft and two both sides as provided from the control and steering position for safe launching and maneuvering.

ANNEX A

(Clauses 6.3 and 7.6)

TIMBER SPECIES CONSIDERED SUITABLE FOR RUDDER

Standard Trade Name (1)	Botanical Name (2)	Abbreviated Symbol (3)
Aini	<i>Artocarpus hirsutus</i> Lam.	AIN
Ash	<i>Fraxinus</i> spp.	ASH
Benteak	<i>Lagerstroemia microcarpa</i> Wight (Syn. <i>L. lanceolata</i> Wall.)	BEN
Gurjan	<i>Dipterocarpus</i> spp. (other than <i>D. macrocarpus</i> Vesque)	GUR
White Chuglam	<i>Terminalia bialata</i> Kurz (Sapwood)	WCH
Dhaman	<i>Grewia tiliaefolia</i> Vahl	DHA
Bhendi	<i>Thespesia populnea</i> Corr.	BHE
Sissoo	<i>Dalbergia sissoo</i> Roxb.	SIS
Lendi	<i>Lagerstroemia parviflora</i> Roxb.	LEN
Mulberry	<i>Morus</i> spp (other than <i>M. laevigata</i> Wall.)	MUL
Teak	<i>Tectona grandis</i> Linn.	TEA
Mullilam	<i>Zanthoxylum rhetsa</i> DC. [Syn. <i>Fagara buidruna</i> Roxb.]	MUI

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BUREAU OF INDIAN STANDARDS

Headquarters :

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002
Telephones : 2323 0131, 2323 3375, 2323 9402

Telegrams : Manaksanstha
(Common to all offices)

Regional Offices :

	Telephone
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110 002	{ 2323 7617 2323 3841
Eastern : 1/14 C.I.T. Scheme VII M, V. I. P. Road, Kankurgachi KOLKATA 700 054	{ 2337 8499, 2337 8561 2337 8626, 2337 9120
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160 022	{ 260 3843 260 9285
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600 113	{ 2254 1216, 2254 1442 2254 2519, 2254 2315
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